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Innovative and Alternative Technology Projects 1985 Progress Report

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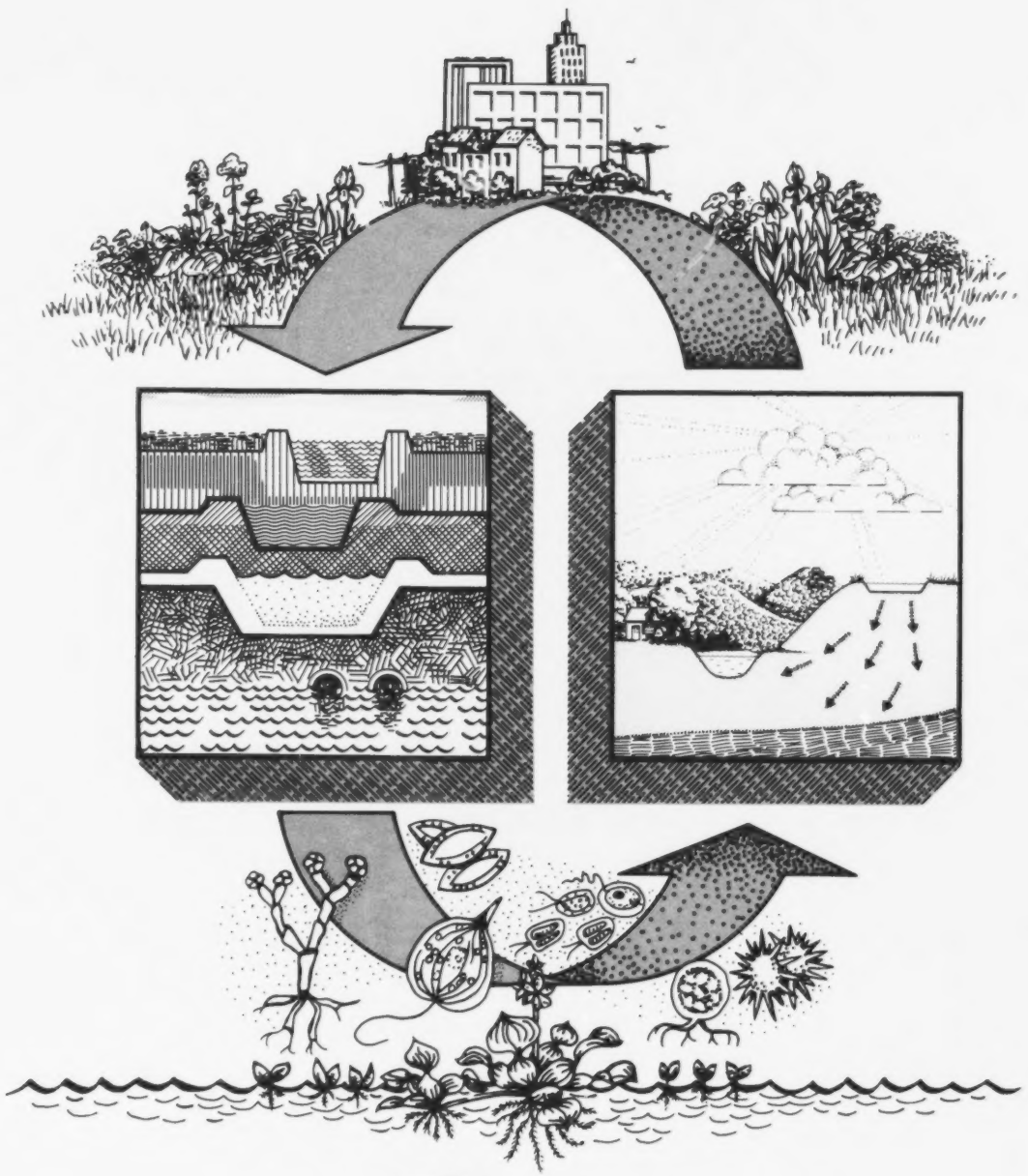

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INNOVATIVE AND ALTERNATIVE TECHNOLOGY PROJECTS: 1985 PROGRESS REPORT

U. S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF MUNICIPAL POLLUTION CONTROL
WASHINGTON, D. C. 20460

I.C

P R E F A C E

The Office of Municipal Pollution Control issues this annual summary to provide interested parties with an overview of progress in the implementation of Innovative and Alternative (I/A) technologies under provisions of the Clean Water Act. The report is based upon information from grant awards through March for the year of issue as provided by state agencies and EPA regional offices. State, EPA region, and EPA headquarters staff have worked diligently to make the listings as accurate and helpful as possible. Richard E. Thomas, National I/A coordinator, who is listed in Table 8, should be contacted to report errors, omissions, or suggestions to improve the usefulness of the report.

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OVERVIEW

The Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) authorized a major Federal funding program to abate water pollution from municipal treatment facilities. The language of P. L. 92-500 sent a clear message that use of the federal grant funds authorized by this law should encourage implementation of alternative technologies.

Specific provisions of the CWA of 1977 established a three-year test program that included a financial incentive, a mandatory reserve fund, and the authority to federally fund correction of failures. Alternative technology projects were eligible by definition and were named in the Environmental Protection Agency (EPA) regulations detailing the provisions of the I/A program. Individual projects or parts of projects could gain eligibility by being designated as innovative on a case-by-case basis.

The 1981 amendments to the CWA continued and strengthened the statutory mandate to encourage use of I/A technologies. The I/A provisions of the CWA of 1977 were extended through fiscal year 1985 with changes that increased the financial incentives and added a provision to fund a new category of projects designated as field testing. The mandatory set-aside was increased to four percent. The bonus grant for I/A projects became a mandatory 20 percent of eligible costs on October 1, 1984. Recognizing a need for flexibility, the Congress provided states the option to increase the mandatory four percent set-aside up to a seven and one-half percent maximum. The field testing program provides a mechanism to verify the basis of design for promising advances in treatment technology to reduce the risk of failure before funding construction of many similar projects.

In summary, there has been a consistent statutory trend from 1972 to the present for the purpose of directing federal funds to the implementation of innovations which are promising, but unproven for the proposed use, as well as proven but comparatively unknown alternatives for wastewater treatment. The increasingly stronger mandates of Congress have had substantial effects in a comparatively short time. Response to the I/A program at the local and state level has resulted in over 3,500 grant awards for I/A technologies from inception of the program on October 1, 1978 through March of 1985. There is every indication that the national response to the program will encourage the Congress to continue strong legislative support when it considers further authorization of the program.

PROGRAM INFORMATION

The I/A program is now an integral part of the overall construction grants program. Most parts of the program are reaching stability while the field test and 100-percent modification/replacement grant activities are in a state of transition. The basic provisions of the 1977 law are stable as evidenced by the award of over 3,500 grants to design and/or construct over 1,600 facilities with innovative or alternative components. Over $410 million of set-aside funds have been used to provide the I/A bonus for eligible components of these projects. Several awards have been made under the provision to provide 100-percent modification and replacement (M/R) funding to correct failures of innovative or alternative components. With over 300 of the I/A-funded facilities now in operation, it is reassuring that there have been less than twenty requests for 100-percent M/R funding. The new field test program established by the 1981 law is a new vehicle for verifying design of innovative projects.

USING THE INFORMATION

Recognizing the value of specific project information, the Office of Municipal Pollution Control (OMPC) has compiled several tabulations to provide summary information on the I/A program.

Tables 1, 2, and 3 present information on projects funded as innovative.

Table 1. Innovative Technology Projects Funded Less Than Ten Times.

Table 2. Summary of Innovative Technologies Funded Ten or More Times.

Table 3. Selected Operating Innovative Technology Projects Funded Ten or More Times.

Table 1 lists the type of technology, location, design flow, basis for approval as innovative, consulting engineering firm, and whether the project is in operation. Table 2 is a numerical summary of those facilities utilizing an innovative technology which has been funded ten or more times. This listing is arrayed by the EPA regions and states to show the geographic distribution of facilities using these technologies. Table 3 provides additional information as to location, size, and the consulting firm for selected operating facilities using innovative technologies funded ten or more times.

Tables 4 and 5 present information on alternative technology projects.

Table 4. Summary of Alternative Technology Projects.

Table 5. Selected Operating Alternative Technology Projects.

In Table 4, a numerical summary of alternative technology projects is presented, while a list of operating facilities is presented in Table 5.

Table 6 lists the location, status, and technology for field test projects.

Table 7 lists the location, status, and technology for 100% M/R requests.

Table 8 lists the appropriate state and EPA contacts from which additional information on the I/A program can be obtained.

TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
AERATION/MIXING			
Dome Diffused			
Meriden, CT	11.6	energy	C. E. Maguire, Inc.
(1)Brockton, MA	18.0	cost & energy	Fay, Spofford & Thorndike, Inc.
(1)Madison Nine Springs, WI	50.0	reg. discr.	O'Brien & Gere
Submerged Mixing of Equalization Tanks			
Mankato, MN	10.0	cost	Bolton & Menck
In-Situ Gas Cleaning of Fine Bubble Diffusers			
Michigan City, IN	-	energy	-
Alliance, OH	7.5	cost	FA Thomas & Assoc.
Lakewood, OH	18.0	cost	Watermation, Inc.
Nenna-Manasha, WI	-	cost	McMahon Assoc., Inc.
Draft Tube			
Atmore, AL	2.0	energy	-
Eufaula, AL	2.55	energy	-
Foley, AL	1.0	energy	-
Opelika, AL	0.94	energy	-
Fairfield, IA	2.8	energy	French, Raneker & Assoc.
(1)Presque Isle, ME	5.2	cost & energy	Wright-Pierce
Star, NC	0.6	energy	-
(1)Bonner Springs, KS	1.4	cost	A.C. Kirkwood & Co.
Hallstead Great Bend, PA	0.35	-	Bellante, Claus, Miller, & Partners
Submerged Turbine Draft Tube			
Cranston, RI	23.0	energy	Universal Engineering Corp.
U-Tube			
(1)Lewes, DE	0.75	cost	Kidde Consultants
Submerged Propellor Mixer			
Ishpeming, MI	2.64	energy	Foth & Van Dyke & Assoc.
(1)Storm Lake, IA	3.4	cost & energy	Kuehl & Payer
CLARIFIERS			
Aerated Clarifier			
(1,2)Choctaw, OK	0.5	reg. discr.	Rea Engineering & Assoc., Inc.
Fixed-Media Clarifier			
(1)Waynesburg, OH.	0.4	energy	-
Aspirating Propellor Pump			
Welch, WV	-	cost	-

(1)Indicates that this facility is listed under more than one innovative technology.
(2)Indicates that this facility is operational.

TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Flocculating Clarifier			
Central Valley, UT	50.0	energy	Coon, King & Knowlton/ Brown & Caldwell
(2)Denmark, WI	0.5	reg. discr.	-
(1)Madison Nine Springs, WI	50.0	reg. discr.	O'Brien & Gere
Inclined Plate Settler			
(2) Sanford, ME	3.6	Reg. discr.	Environmental Engineers, Inc.
Tube Settlers w/Chlorination			
(1)Flagstaff, AZ	6.0	cost	Brown & Caldwell
COLLECTION SYSTEMS			
Collection of Septic Tank Effluent			
Wasilla, AK	-	cost	CH2M Hill, Inc.
(1)Marathon, IA	0.04	cost	DGR & Assoc.
Kenneth, MN	0.01	reg. discr.	McCombs-Knutson, Assoc.
(1)Lincoln, MT	0.11	env. ben.	Stahly Eng. & Assoc.
Muskingum, OH	0.04	cost	Friedl & Harris
CSO Treatment			
Decatur, IL	41.0	cost & env. ben.	
Ogdensburg, NY	6.5	cost	Sterns and Wheeler
Houston, TX	320	cost	Lockwood, Andrews & Newnam
Small Diameter Gravity Collection			
(1,2)Lake Monroe, IN	0.039	cost	Beam, Longest, & Neff
Alligator, MS	0.03	cost	Ray Barker & Associates
(1)Lincoln, MT	0.11	cost & envr. ben.	Staley Eng. & Assoc.
(1)Crawford, NY	0.15	cost	Phillip J. Clark, Engineers, Inc.
(1)Woodstock, NY	0.2	cost	Lombardo Assoc. of Boston
(1)Cornersville, TN	-	cost	John Coleman Hayes
Montgomery Co., VA	0.25	cost & energy	Draper-Aden
Variable Grade Sewer			
Cooksville, OH	0.671	cost	Finkbeiner, Pettis, & Stron
Roseville, OH	0.671	cost	Design Enterprises, Inc.
Twin Cities, OHG	-	cost	W. E. Quicksall & Assoc.
Zanesville, OH	8.0	cost	Dalton-Dalton-Little
DISINFECTION			
Ozonation			
Moorhead, MN	6.0	reg. discr.	Watermation, Inc.

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(2)Indicates that this facility is operational.

TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Pre-Ozonation			
N. E. Ohio, OH	50.0	-	Engineering Science
DISPOSAL OF EFFLUENT			
Deep Well Injection of Effluent			
(1)St. Petersburg, FL	60.5	cost	-
Subsurface Filter/Surface Discharge			
Lee County, FL	10.0	cost & energy	-
Town of Newport, VT	0.4	env. ben.	Phillips & Emberley, Inc.
Water Supply/Aquifer Recharge			
Lee Co. FL	10.0	env. ben.	-
(1)El Paso, TX	10.0	env. ben.	Parkhill, Smith & Cooper, Inc
ENERGY CONSERVATION AND RECOVERY			
Active/Passive Solar Heating			
(1)Hillsborough, NH	0.45	energy	Anderson-Nichols Assoc., Inc.
Providence, RI	60.0	energy	Universal Engineering Corp.
Solar Heat/Hearth Shelter Insulation			
Lake Crystal, NH	0.31	energy	Bolten & Menk
Active Solar Heating			
(1,2)Vinton, IA	1.8	energy	H. R. Green & Co.
City of Newport, VT	1.2	energy	Webster-Martin, Inc.
Energy Recovery/Heat Pumps			
(1)Storm Lake, IA	3.4	cost & energy	Kuehl & Payer
New York City, NY	110.0	energy	SEA Consultants, Inc.
(1)Hillsborough, NH	0.45	energy	Anderson-Nichols Assoc., Inc.
(1)Los Angeles City, CA	470.	energy	Montgomery & Parsons
(1)Los Angeles County, CA	400	energy	Foster-Wheeler/Babcock & Wilcox/LA County staff
Hydroelectric Generation Station			
Bonney Lake, WA	2.0	energy	Phillip M. Botch & Assoc.
Solar Collectors/Energy Conservation			
Pine River, MN	0.25	reg. descr.	D. L. Floan
Solar Power System			
(1)Waynesburg, OH	0.4	energy	-

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TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Solar Space Heating			
Cornelia, GA	3.0	reg. descr.	-
(2)Lake Monroe, IN	0.039	cost	Beam, Longest & Neff
Gaffney, SC	3.2	reg. descr.	-
(2)Jackson, WY	3.5	energy	ARIX
Supplemental Solar Heating			
(1)Flagstaff, AZ	6.0	energy	Brown & Caldwell
Use Waste Steam From Power Plant			
(2)Waukesha, WI	11.6	energy	Alvord, Burdic & Howson
(1)Los Angeles City,CA	470	energy	Montgomery & Parsons
(1)Los Angeles County, CA	400	energy	Foster-Wheeler/Babcock & Wilcox/County Staff
Waste Heat Recovery			
Macon-Bibb, GA	28.0	joint munic. /indust.	-
(1)Greensboro, NC	20.0	energy	-
(1,2)North Tulsa, OK	30.0	reg. discr.	Black & Veatch/Fell, Brusso, Bruton & Knowles
(1)Tri-City, OR	13.5	cost & energy	CH_2M Hill Engineers
FILTRATION			
Continuous Clean Sand Filter			
Eveleth, MN	1.7	cost & energy	Robert R. Wallace & Assoc.
Johnstown, OH	0.75	cost	Evan,Mwechwart, Ambleton & Tilton, Inc.
Floating Dredge Sand Filter			
(2)Green River, WY	1.5	reg. Discr.	Culp, Wesner, Culp
Intermittent Sand Filtration			
(1)Marathon, IA	0.04	cost	DGR & Assoc.
Microscreens			
(2)Sterling, CO	3.88	reg. descr.	ARIX
Burley, ID	2.25	cost & energy	CH_2M Hill
Newton, MS	0.77	cost	Wayne Watts, Engineer
Scottsbluff, NE	3.14	-	John E. Olsson & Associations
Henderson, NV	1.5	cost	URS Engineers
Recirculating Rock Filter			
(2)Marionville, MO	0.49	cost	Hood-Rich
(2)Seymour, MO	0.25	cost	Hood-Rich

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TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Recirculating Sand Filter			
(2)Port Costa, CA	0.033	energy	Harris & Assoc.
(2)Miranda, CA	0.046	energy	Winzler & Kelley
Damiansville, IL	6.0	reg. discr.	Barttelbort & Rhutas
Sandieville, KY	0.03	cost	-
(2)Alton, MO	0.1085	cost & energy	Crane & Fleming Company
Eminence, MO	0.29	cost & energy	Missouri Engineering
(2)Mountain View, MO	0.27	cost & energy	Crane & Fleming Company
Lane, OR	0.044	energy	Kramer, Chin & Mayo
Little Black S.D.#1, WI	-	cost	C. C. Crane, Inc.
Slow Rock Filter			
New Haven, IL	0.07	cost	Hunter H. Martin & Assoc.
(1)West Monroe, LA	5.6	-	-
Primary Effluent Filtration			
DeKalb, IL	-	-	-
Wheaton, IL	8.9	cost	Baxter & Woodman
Corry, PA	9.0	cost & energy	Lake Engineering
Warminster, PA	-	-	Carrol Engineering
LAGOONS			
Total Containment Pond			
Gerlach, NV	0.03	cost	Wingler & Kelly
(2)Marietta, GA	0.3	-	-
Controlled Discharge Stabilization Pond			
Jackman, ME	0.103	cost & energy	Carroll & Taylor Assoc.
Deep Lagoons			
Dodge City, KS	4.25	reg. discr.	Engineering Enterprises, Inc.
Complete Mix Lagoon			
(2)Douglas, WY	1.5	cost	Black & Veatch
Facultative Lagoons			
Bristol Bay, AK	0.15	cost & energy	Tryck, Nyman & Hayes
Holbrook, AZ	1.3	energy	John Carollo Engineers
Lagoon in Lieu of Chlorination			
Canton, ME	0.04	reg. descr.	Woodward & Curran, Inc.
Lagoon in Lieu of Clarification/Sludge Treatment			
Wilmington, VT	1.1	cost & energy	Eberhard Engineering

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TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
LAND APPLICATION OF EFFLUENT			
Aquaculture			
Paragould, AR	2.2	-	-
Wilton, AR	0.09	env. ben.	McClelland Consulting Engrs. Inc.
(1)Austin, TX	26.0	energy	Parkhill, Smith & Cooper, Inc.
San Benito, TX	-	-	-
Craig-New Castle, PSD, VA	0.18	-	Anderson & Assoc.
Duckweed			
Paragould, AR	2.2	Reg. descr.	Black & Veatch
Rapid Infiltration			
(2)Waycross, GA	7.0	cost	-
Payette Lakes, ID	1.8	cost	JUB Engineers, Inc.
(1,2)Lincoln, MT	0.11	env. ben.	Stahly Engineers & Assoc.
(2)Madison, SD	1.8	cost	Banner Assoc., Inc.
Silviculture			
(1,2)Dalton, GA	40.0	reliability	-
Eagle Lake, NC	0.023	env. ben. & reliability	Carroll & Taylor & Assoc.
(2)Eagle Lake, ME	0.146	env. ben. & reliability	Carroll & Taylor & Assoc
Steep Slope Spray Irrigation			
(2)Craigsville, VA	0.25	env. ben.	Betz. Converse & Murdock
Wetlands			
Granger, IA	0.311	env. ben.	Veenstra & Kimm, Inc.
Norwalk, IA	0.633	env. ben.	Associate Engineers, Inc.
Riverside, IA	-	env. ben.	Shive-Hattery & Assoc.
St. Paul, KS	-	env. ben.	Shetler, Griffith & Shetlar
Collins, MS	0.4	env. ben.	Engineering Associates
Incline Village, NV	2.14	cost	CH_2M Hill Engineers/Culp-Wesner-Culp
Cannon Beach, OR	49.0	cost	CH_2M Hill Engineers
NITRIFICATION			
Fixed Growth Biological Nitrification			
Redwood Falls, MN	0.7	reg. discr.	-
Pure Oxygen/Single Stage Nitrification			
Indianapolis, IN	125.0	reg. discr.	Reld, Quebe, Allison Wilcox & Assoc.
Upflow Packed Bed Nitrification			
(2)Upper Eagle Valley, CO	3.2	cost	M&I Engineers

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TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
RBC Nitrification			
Milford, ME	-	reg. discr.	Haley & Ward, Inc.
(1,2)Oak View, CA	3.0	cost & energy	James Montgomery Engineers
Specialized Bacteria			
Hornell, NY	3.25	cost	LaBella Associates
NUTRIENT REMOVAL			
Allied Treatment for Phosphorus Removal			
Big Fork, MT	0.5	cost & env. ben.	Thomas, Dean & Hoskins, Inc.
Bardenpho			
Ft. Meyers, FL	24.0	energy	-
(1)Payson, AZ	2.4	cost	Moore Knickerbocker & Assoc.
Breakpoint Chlorination for Ammonia Removal			
Longmont, CO	11.55	cost	McCall, Ellington, & Morrill, Inc.
Chemical Addition to Lagoon for P Removal			
Albany, MN	0.4	cost	Rieke-Carroll-Muller & Assoc.
Albertville, MN	0.12	cost	Meyer Rohlin, Inc.
PhoStrip			
(1)Brockton, MA	18.0	cost & energy	Fay, Spoffort & Thorndike, Inc.
(1)Rochester, MN	19.1	energy	Kirkham-Michael & Assoc.
Reno, NV	40.0	cost	Kennedy, Jenks Engineers
Amherst, NY	12.0	cost	Neussbaumer, Clark & Velzy
Ithica, NY	10.0	cost	Sterns and Wheeler
Biofilter/Diffused Air TKN Removal			
Oakland, MD	0.9	cost	Franklin Assoc.
Waste Pickle Liquor/P Removal			
(1)Baltimore, MD	170.0	cost	Whitman, Reguardt & Assoc.
Anoxic/Oxic System			
Fayetteville, AR	17.0	-	CH_2M Hill Engineers
Largo, FL	13.0	cost	-
(1)Baltimore, MD	70.0	cost	Whitman, Reguardt & Assoc.
(1)Tri-City, OR	13.5	cost & energy	CH_2M Hill Engineers
Lancaster, PA	30.0	cost	Huth Engineers
OXIDATION DITCH			
Anoxic Oxidation Ditch			
Chatham, VA	0.45	cost & energy	Olver, Inc.

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TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Over-Under Aeration			
Cleveland, VA	0.04	energy	Dewberry, Nealon, & Davis
Fries, VA	0.22	energy	Dewberry, Nealon, & Davis
Benthal Stabilization			
Wellsboro, PA	2.0	cost	Tatman & Lee
Carrousel Oxidation Ditch			
(2)Mount Holly Springs, PA	0.3	cost & energy	Tracy Engineers
ROTATING BIOLOGICAL CONTACTORS			
Hydraulically Assisted RBC's			
(1)Hardinsburg, KY	0.73	energy	-
Air Driven RBC's			
(1,2)Oak View, CA	3.0	cost & energy	James Montgomery Engineers
SLUDGE TECHNOLOGY			
Thickeners, Belt Filter Presses			
(1)Cape May Co., NJ	6.3	reg. discr.	Pandullo, Quirk & Assoc.
Lateral Flow Thickeners			
(1)Bonner Springs, KS	1.4	Energy	A. C. Kirkwood & Co.
(1)Hutchison, KS	8.3	cost	Wilson & Co.
Carver-Greenfield			
(1)Los Angeles City, CA	470.0	energy	Montgomery & Parsons
(1)Los Angeles County, CA	400	energy	Foster-Wheeler/Babcock & Wilcox/LA County Staff
Mercer Co., NJ	56.0	cost, energy & env. ben.	Clinton-Bogart Assoc.
Belt Filter Presses with Lime Feed			
Ewing-Lawrence, NJ	18.0	cost & energy	Buck Siefort & Jost
Vacuum Sludge Drying Beds			
(2)Nevada City, CA	-	energy	-
Brighton, CO	1.76	cost	Henningson, Durham, Richardson
Belle Plaine, IA	0.61	reg. discr.	H. R. Green Co.
Gilman, IL	0.5	reg. discr.	Jerry Lacy & Assoc.
(2)Portage, IN	3.5	reg. discr.	American Engineering
(2)Union City, IN	1.5	reg. discr.	M. W., Inc.
Gantier, MS	2.6	cost	Barth and Associates
(1)Chinook, MT	0.5	cost & env. ben.	Robert Peccia & Assoc.
Buena Vista, VA	-	cost	White & Co.

(1)Indicates that this facility is listed under more than one innovative technology.
(2)Indicates that this facility is operational.

TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Vacuum/Belt Series			
Oklahoma City, OK	40.0	energy	Benham-Blair & Affiliates, Inc.
Odor Control for Sludge Lagoons			
(2)Sacramento, CA	-	cost & energy	Sacramento Area Consultants
Facultative Sludge Lagoons			
(1)Flagstaff, AZ	6.0	cost & energy	Brown & Caldwell
Travelling Guns to Land Apply Sludge			
Grand Strand, SC	6.0	cost	-
INCINERATION			
Chromium Detoxification of Fludized Bed Ash			
S. Essex, MA	41.0	reg. discr.	Tighe and Bond
Co-Incineration			
Macon Co., GA	14.0	cost	-
Glen Cove, NY	8.0	reg. discr.	Wm. F. Cosulich & Assoc/ E.F.W. Frank
Memphis, TN	80.0	cost & energy	-
Starved Air Combustion of Sludge			
(2)St. Louis, MO	167.0	energy	Consoer, Townsend & Assoc.
(1)Greensboro, NC	20.0	energy	-
Thermal Processing w/Production of Construction Aggregate			
Philadelphia, PA	100.0	reg. descr.	Franklin Research Institute
SLUDGE COMPOSTING			
Aerated Static Pile Composting			
(1)Lexington-Fayette, KY	16.0	env. ben & reliability	-
Myrtle Beach, SC	12.5	env. ben & reliability	-
Modified Windrow Composting			
Tampa, FL	60.0	cost	-
Invessel Mechanical Composting			
Brunswick, GA	10.0	-	-
(1)Cape May, NJ	6.3	reg. discr.	Pandullo, Quirk & Assoc.
Clinton Co., NY	-	cost	Metcalf & Eddy
New York, NY	280.0	cost	NY City/Compost Systems, Inc.
(1)East Richland, SC	7.0	env. ben. & reliability	-

(1)Indicates that this facility is listed under more than one innovative technology.
(2)Indicates that this facility is operational.

TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Sludge Composting			
Jefferson Co., AL	35.0	env. ben. & reliability	-
Juneau, AK	-	-	Arctic Environmental Engineers
(2)Beatrice, NE	1.9	cost	Hoskings, Wester & Sonderegger
(1)El Paso, TX	10.0	env. ben.	Parkhill, Smith & Cooper, Inc.
Sludge Digestion			
Aerobic Digestion			
(1)Weiser, ID	2.3	env. ben.	CH_2M Hill
(1)Chinook, MT	0.5	cost & env. ben.	Robert Peccia & Assoc.
Anaerobic Digestion			
(1)Aroostook/Presque Isle, ME	1.3	energy	Wright-Pierce, Inc.
Dual Aerobic/Anaerobic Digestion			
(1)Hagerstown, MD	8.0	cost & energy	Buckhart-Horn
(1,2)Henderson, NC	4.14	env. ben. & reliability	-
(2)Lackawanna, NY	4.5	reliability	Neussbaumer, Clark & Velzy
MISCELLANEOUS			
Aerobic Pure Oxygen Fluidized Bed Reactor			
(2)East Bay Dischargers, CA	13.1	cost & energy	Kennedy/Jenks Engineers
Nassau Co., NY	10.0	reg. discr.	Consoer, Townsend & Assoc.
Biological Aerated Filter			
Oneonta, Al	2.2	cost	-
Wallace, NC	0.64	cost	-
Harrah, OK	-	-	-
St. George, SC	0.8	cost	-
Captor			
Moundsville, WV	2.75	cost	Cerrone & Vaughn, Inc.
Chemical Air Scrubber Odor Control			
Western Lake Superior, MN	43.9	reg. discr.	Southwest Survey Eng.
Community Mound System			
Elbe, WA	0.4	cost	Byrne-Stevens & Assoc.
Computerized Financial Management			
Passaic Valley, NJ	-	cost	Authur Young & Company
Digestor Supernatant Treatment			
Mokena, IL	1.10	reg. discr.	Mulford Engineering

(1)Indicates that this facility is listed under more than one innovative technology.
(2)Indicates that this facility is operational.

TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Dissolved Air Flotation			
(1)Weiser, ID	2.3	env. ben.	CH_2M Hill
Earthen Pond System			
Quincy, CA	0.72	cost & energy	John Carollo Engineers
Eductor Induced Vacuum Chemical Addition			
Washington, DC	309.0	cost	-
Enclosed Impeller Screw Pumps			
(1)Hutchison, KS	8.3	cost	Wilson & Co.
Westborough, MA	7.68	reg. discr.	SEA Consultants, Inc.
Republic, MD	0.93	energy	Hood-Rich
(1)Hillsborough, NH	0.45	cost & energy	SEA Consultants, Inc.
Intermittent Cycle Extended Aeration System			
Cornersville, TN	-	cost	John Coleman Hayes
Tullahoma, TN	3.0	cost	-
Union City, TN	4.03	cost	-
Modular Activated Sludge			
Edgar Springs, MO	0.04	cost	Heagler & Marshall
Norwood, MO	0.04	cost	Scott Consulting Eng.
Permafrost Construction			
Naknek, AK	-	cost	Tryck, Nyman & Hayes
Powdered Activated Carbon/Regeneration			
Sauget, IL	27.0	reg. discr.	Russell Axon & Assoc.
Kalamazoo, MI	53.3	cost	Jones & Henry
(2)Burlington, NC	9.5	cost	-
Bedford Heights, OH	2.5	reg. discr.	Dalton, Dalton, Little
N. Olmsted, OH	8.0	cost	Dalton, Dalton, Little
(1)El Paso, TX	10.0	env. ben.	Parkhill, Smith & Cooper
Primary Treatment Facility			
E. Millinocket, ME	0.5	cost	Camp, Dresser & McKee, Inc.
Sequencing Batch Reactor			
Idaho Springs, CO	0.6	cost	McCall, Ellingson & Morrill, Inc.
(2)LaClaire, IA	0.5	reg. discr.	Shive Hattery & Assoc.
(2)Grundy Center, IA	0.83	reg. discr.	Clapaddle Garber & Assoc.
Sabula, IA	0.7	reg. discr.	Shive Hattery & Assoc.
Horn Point, MD	0.04	cost	-
Poolesville, MD	0.6	cost & energy	Kamber Engineers
(1,2)Choctaw, OK	0.5	reg. discr.	Rea Engineering & Assoc., Inc.
Rush/Ryan, PA	0.05	cost & energy	Nassaux-Hensley
Huron, SD	2.3	cost	Wells Engineering

(1)Indicates that this facility is listed under more than one innovative technology.
(2)Indicates that this facility is operational.

TABLE 1 - INNOVATIVE TECHNOLOGY PROJECTS FUNDED LESS THAN 10 TIMES (cont'd)

Description of Technology/Grantee	Design Flow (MGD)	Basis of Approval	Design Consulting Firm
Shallow Bed Trickling Filter Media			
Delmont, PA	-	cost	Duncan & Assoc.
Soil Purification Treatment			
Kapehu, HI	0.016	cost and energy	Do Joker
Swirl Concentrators			
(2)Auburn, IN	1.7	cost	Howard, Needles, Tammen & Bergendoft
(1)Presque Isle, ME	5.2	cost & energy	Wright-Pierce
(2)Toledo, OH	160.0	cost	Jones & Henry
Teacup Separator for Grit Removal			
(1)Lewes, DE	0.75	cost	Kidde Consultants
Omaha, NE	46.0	reg. discr.	Camp, Dresser & McKee, Inc.
Trickling Filter-Solids Contact			
(2)Coeur D'Alene, ID	4.2	cost	Brown & Caldwell
Geneseo, IL	1.48	cost	Belling Engineering
Albuquerque, NM	-	-	Wilson and Company
Claremore, OK	-	-	-
Chemung Co., NY	12.0	cost	Lozier Engineers
Tubular Screw Pumps			
Ft. Meade, FL	1.0	env. ben.	-
(1)Aroostock-Presque Isle, ME	1.3	energy	Wright-Pierce, Inc.
Gardiner, ME	1.8	reg. discr.	SEA Consultants, Inc.
Wind Turbine Generators			
Erie, NY	16.0	cost	U.R.S. Company, Inc.
Windmill Compressed Air Aeration			
Menan, ID	0.218	-	Thompson Engineers, Inc.

(1)Indicates that this facility is listed under more than one innovative technology.
(2)Indicates that this facility is operational.

TABLE 2

SUMMARY OF INNOVATIVE TECHNOLOGY PROJECTS FUNDED 10 or MORE TIMES

EPA Region	State	Wastewater									
		Counter Current Aeration	Intra Channel Clarifier	UV Disinfection	Digester Gas Utilization	One Cell Lagoon/ Dual Sand Filter	RCE Lagoon	Overland Flow	Slow Rate	Draft Tube Oxidation Ditch	Oxidation Ditch
I	Connecticut			1							
	Maine			3							
	Massachusetts										
	New Hampshire										
	Rhode Island										
	Vermont										
II	New Jersey		1	4						4	
	New York										
	Puerto Rico										
	Virgin Islands										
III	Delaware		1							1	
	Wash., D.C.										
	Maryland		1	3	1					1	
	Pennsylvania									3	
	Virginia	1								1	3
	West Virginia										
IV	Alabama	5			1		5		1	4	
	Florida	1			1			1	1		
	Georgia	1							1		
	Kentucky	1	7		2		1				
	Mississippi		2	1			8	1			
	North Carolina	5			1						
	South Carolina	1					1		1		
	Tennessee	6						2	1		
V	Illinois		1			10		1	1		1
	Indiana										
	Michigan		1	5	3						1
	Minnesota		2	1							2
	Ohio			1			1				
	Wisconsin										
VI	Arkansas		1	1			1	3			
	Louisiana							8		1	
	New Mexico										1
	Oklahoma			2	1			1			
	Texas	1			1			2			
VII	Iowa		1	1	1				2		2
	Kansas		1	2							1
	Missouri		4	1	1		1	1	3		
	Nebraska										
VIII	Colorado			2				1			
	Montana								1		
	North Dakota		1								
	South Dakota			4							
	Utah										
	Wyoming										
IX	Amer. Samoa			1							
	Arizona				2						
	California										
	Guam										
	Hawaii										
	Nevada										
	N. Marianas Is.										
	Pac. Islands										
X	Alaska										
	Idaho										
	Oregon										
	Washington										
Total		22	24	33	15	10	18	21	12	15	11

TABLE 3

SELECTED OPERATING INNOVATIVE TECHNOLOGY PROJECTS
FUNDED TEN OR MORE TIMES

Selected Operational Facilities			
State	Community	Design Flow (MGD)	Design Consulting Firm
Counter-Current Aeration			
TN	(1)Clairborne Co.	0.32	-
UV Disinfection			
AR	(1)Lamar	0.011	Burrough-Uerling-Brasuell, Consulting Engineers, Inc.
KS	Hesston	0.586	Wilson & Co., Engineers and Architects
KS	McPherson	0.16	Wilson & Co., Engineers and Architects
MD	Clear Spring	0.2	Wilson & Co., Engineers and Architects
MD	Smithburg	0.2	Fellows & Reed
MN	Albert Lea	3.4	Toltz, King, Duvall, Anderson & Assoc.
MN	Northfield	2.5	Bonestroo, Rosene, Anderlik, & Assoc.
WY	Evanston	2.9	Ekhoff, Watson, Preator
WY	Lander	2.12	Western Design Consultants
WY	Worland	1.12	ARIX
MD	Thurmont	1.0	Harrington, Lacey & Assoc.
MO	Cassville	0.5	Allgeier, Martin & Assoc.
Digester Gas Utilization			
IA	Glenwood	1.43	Henningson, Durham, & Richardson
OK	N. Tulsa	30.0	Black & Veatch/Fell, Burton, & Knowles
Oxidation Ditch			
IA	(1)Vinton, IA	1.8	H. R. Green & Co.
VA	King George County	0.05	Gilbert W. Clifnor
VA	Smithfield	0.5	R. Kenneth Weeks
VA	Southhampton County	0.303	Henry T. Sadler

Selected Operational Facilities			
State	Community	Design Flow (MGD)	Design Consulting Firm
Hydrograph Controlled Release Lagoon			
AL	Blountsville	0.275	--
AL	Linden	0.45	--
LA	West Monroe	5.6	--
MS	Raleigh	0.2	Cook-Coggin Engineers
MS	Vaiden	0.15	Barth & Assoc.
Overland Flow			
AR	(1)Lamar	0.11	Burrough, Uerling, Brasuell, Consulting Engineers, Inc.
AR	Wabbaseka	0.104	Affiliated Engineers
FL	Raiford	1.3	Wm. Bishop Consulting Eng.
LA	Esterwood	0.018	Alex Theriot, Jr. & Assoc.
LA	Hall Summit	0.056	Alex Theriot, Jr. & Assoc.
LA	Morse	0.09	Alex Theriot, Jr. & Assoc.
MS	Cleveland	3.0	Clark Dietz Engineers
NE	Clay Center	0.12	Johnson, Erickson & O'Brien
TX	Corsicana	1.0	Gilbreth & Assoc.
Spray Irrigation			
IA	Fredericksburg	0.95	Bennett & Assoc.
IA	Sanborn	0.34	Kirkham-Michael & Assoc.
NE	Fullerton	0.2	Bruce Gilmore & Assoc.
NE	Gordon	0.4	Baker & Sweeney
NE	Schuyler	0.6	Kirkham-Michael & Assoc.
UT	Heber Valley	2.5	Horrocks Engineers
Draft Tube Oxidation Ditch			
WV	Crab Orchard	1.0	Gates Engineering

(1)Indicates that this facility is listed under more than one innovative technology.

TABLE 4

SUMMARY OF ALTERNATIVE TECHNOLOGY PROJECTS

EPA Region	State	Wastewater										Sludge				
		Aquaculture/ Wetlands	Containment Ponds	Direct Re-Use	Overland Flow	Rapid Infiltration/ Aquifer Recharge	Slow Rate Irrigation	Alternative Collection System	On-Site Treatment	Septage Treatment	POM Methane Recovery	Self-Sustaining Incineration	Composting Prior Land Application	Drying Prior to Land Application	Land Application
I	Connecticut					2		2	2	6	3	1			
	Maine							9	9				9		
	Massachusetts					3	1	1	1	13	2	2	7		1
	New Hampshire						1		2	8					
	Rhode Island											1			
	Vermont						1	5	5					6	10
II	New Jersey							4	1	16	1		6	3	
	New York				4	3	3	38	2	4	17	1	4		
	Puerto Rico														
	Virgin Islands														
III	Delaware							2	3					1	1
	Wash., D.C.													1	
	Maryland				2	1	3	11		3	1		1		2
	Pennsylvania	1			1	1		27	5		3		2		1
	Virginia				2	1	1	5	3	1	3		3	2	3
	West Virginia							16			2				
IV	Alabama						1	2			1		1		1
	Florida			1		4	12				2		2		1
	Georgia				1		10	1			1				4
	Kentucky				1		2	10	2		2		1		9
	Mississippi				14		3	3							5
	North Carolina						22	3			5				5
	South Carolina					2	9								2
	Tennessee				1		6	12				1	1		4
V	Illinois				1	1	3	6	3	1	6			3	14
	Indiana						1	7			5	1			4
	Michigan					6	8	4	3	3	1				11
	Minnesota						10	4	10	1	4				12
	Ohio						1	4	1		1		2		5
	Wisconsin					11	6	5	1		4				6
VI	Arkansas	1		1			4	12		2	2				
	Louisiana				1		5	6	2						1
	New Mexico			1			6				2		1		
	Oklahoma		22				24				1				
	Texas	1	1	4		1	8	4	1		4		1	4	3
VII	Iowa						2	2			1				13
	Kansas		24	1		1	12				6		1		17
	Missouri				5		8	16	1		2	1		9	18
	Nebraska		22		1	1	4				1		2	1	4
VIII	Colorado			1		1	2	1			1			1	2
	Montana		3			6	6	1			2				6
	North Dakota		16				6	22	5						
	South Dakota	1	8	1		5	2	2	1	1	2				10
	Utah						1				1		1	1	1
	Wyoming		3			2	2								2
IX	Amer. Samoa														
	Arizona		3		1	2	6				3			1	1
	California	1	2	5	2	12	14	9	4	3	6	2	2	1	2
	Guam		1			2									
	Hawaii						1								
	Nevada		4	3	4	4	5				3				
	N. Marianas Is.														
	Pac. Islands														
X	Alaska							1		1			1	1	
	Idaho		3		1	1	6	4		1					2
	Oregon	1				1	5	3	1		2				4
	Washington	1	1				4	3	2		2				
Total		7	113	18	42	74	237	267	70	64	105	10	48	35	187

TABLE 5

SELECTED OPERATIONAL ALTERNATIVE TECHNOLOGY PROJECTS FUNDED

Selected Operational Facilities			
State	Community	Design Flow (MGD)	Design Consulting Firm
WASTEWATER TREATMENT			
Containment Ponds			
AZ	Alpine	0.08	Ellis, Murphy & Holgate
AZ	Show Low	0.8	Johannessen & Gerlad/Rod. Gomez
CA	Fall River Mills	0.071	Rolls, Anderson & Rolls
ID	Bruneau	0.025	Tudor Eng. Co.
KS	Lorraine	--	Evans, Bierly, Hutchinson & Assoc.
MT	Gilford	0.023	Lightowler & Johnson
NE	Brainard	0.02	Johnson, Erickson, O'Brien & Assoc.
NE	Broadwater	0.018	Baker, Sweeney & Assoc
NE	Craig	0.03	Consolidated Engineers
NE	Edgar	0.098	Johnson, Erickson, O'Brien & Assoc.
NE	Harvard	0.01	Price, Johnson & Erickson
NE	Maywood	0.032	Paul Mousel & Assoc.
NE	Overton	0.068	Great Plains Eng.
NE	Stapleton	0.03	Bruce L. Gilmore & Assoc.
ND	Courteney	0.014	Interstate Engineering
ND	Drake	0.033	Viegel Engineering
ND	Harmath	0.014	North Central Consultants
ND	Martin	0.009	Houston Eng.
ND	McHenry	0.007	Becker Engineering
ND	Ross	0.012	Viegel Engineering
ND	Turtle Lake	0.099	Wold Engineering
NV	Schurz	0.05	Indian Health Services
NV	Jackpot	0.237	J.U.B. Engineers
NV	Eureka	0.05	Chilton Engineers
OK	Fox Rural	0.032	Fox & Drechsler
OK	Hooreland	0.15	C. H. Guernsey & Co.
SD	Redfield	0.28	Clark Engineering
SD	Ravinia	0.005	Shumacker, Paul, Hohr, & Assoc.
SD	Westport	0.015	Clark Engineering
SD	White River	0.07	Alliance of Architects & Engineers
SD	Lake Norden	--	Schoell & Matson
WY	LaGrange	0.035	Wells Engineering
WY	Glendo	0.095	MSN Consultants, Inc.
WY	Yoder	0.03	Wells Engineers
Direct Re-Use			
AZ	Hayden (Industrial)	0.18	V.E.A. Ltd. Consulting Engineers
AZ	Page	1.0	Dibble & Associates
CA	Las Virgenes	8.0	Boyle Engineers
CA	Martin	2.7	Marin MWD Engineers
CO	North Glen	4.0	Schaffer & Roland
SD	Yankton	3.6	Dewalt, Grant, Rechert, & Assoc.

TABLE 5 (cont'd)

Selected Operational Facilities

State	Community	Design Flow (MGD)	Design Consulting Firm
Overland Flow			
CA	Davis	5.0	Brown & Caldwell
CA	Newman	1.1	Brown & Caldwell
ID	Santa-Fernwood	0.1	J-O-B Engineers
MS	Sumrall	0.2	--
NV	Carson City	3.15	Vasey Engineering
NV	Minden-Garderville	1.8	Resource Concepts
TX	Chico	0.076	--
VA	Kenbridge	0.3	Environmental Technology Consultants, Inc.
Aquifer Recharge or Rapid Infiltration			
AZ	Mammoth	0.162	Dooley-Jones
AZ	Pima Co./Green Valley	2.1	Dooley-Jones/Montgomery Eng.
CA	Boron	0.21	BPW Engineers
CA	San Bernandino	0.48	CH Engineering Assoc.
CA	Sonoma	0.067	Brelge & Race
CA	Woodbridge	0.24	Darrhl Dentoni & Assoc.
CO	Sterling	3.9	ARIX
KS	Syracuse	0.23	Evans, Bierly, Hutchison & Assoc.
MT	Bozeman	5.75	Thomas, Dean & Hoskins
MT	Corvallis	0.051	Morrison-Maierle
MT	Last Glacier	0.91	Kehnlein, Lightower & Johnson
NV	Elko	2.5	Chilton Engineers

Selected Operational Facilities

State	Community	Design Flow (MGD)	Design Consulting Firm
NV	Henderson	6.3	URS Engineers
NV	Mountain City	0.03	Consulting Engineering Services
NV	Tonopah	0.5	William F. Pillsbury Engineers
SD	Oacoma	0.067	Alliance of Architects & Engineers, Inc.
SD	Madison	1.8	Banner & Associates
WI	Grandon	0.026	Donohue & Assoc., Inc.
WI	Hayward	0.68	Morgan & Parmley
WY	Jackson	3.5	ARIX
WY	Laramie	1.8	Banner & Associates

*There are slow rate infiltration projects in most states. Contact the local I/A coordinator for the location of individual projects.

ALTERNATIVE COLLECTION SYSTEM			
AL	Dallas Co.	0.9	Goodwyn & Mills
CA	Santa Ynez	0.2	Montgomery Engineers
CA	South Lake Tahoe	0.056	Swanson & Oswald
CO	Three Lakes	1.34	ARIX
ID	Avery	0.023	David Welch & Assoc., Inc.
ID	Rocky Point	0.06	J-O-B Engineers
IN	Hamilton Lake	0.3	C. E. Williams & Assoc.
KY	Fancy Farms	0.3	Lenard A. Griggs & Assoc.
MD	Queen Annes	0.8	O'Brien & Gere Engs., Inc.
MI	Rudyard Township	0.077	McNamee, Porter & Seely

TABLE 5 (cont'd)

Selected Operational Facilities

State	Community	Design Flow (MGD)	Design Consulting Firm
MO	McKane	0.1	Williams & Works
MS	Granada	0.06	Miller, Wihry & Lee
NY	Gardiner	0.05	Erikson & Silber
NY	Orleans	0.053	Sargeant, Webster, Crenshaw & Folley
SD	Mina Lake	0.03	Doss Engineering
TN	Belle Meade	0.325	Barge, Waggener & Assoc.
TX	East Cedar Creek	--	Johnson Eng. Co.
WA	Black Diamond	0.03	Kramer, Chin & Mayo, Inc.
WA	Eastsound	0.08	ARC Engineering
ON-SITE TREATMENT			
CA	Tayloreville	0.045	Walters Engineering
ME	Isleboro	0.014	Edward C. Jordan Co., Inc.
MI	West Traverse	0.006	Williams & Works
NH	Weate	0.25	Anderson-Nichols
SD	Mina Lake	0.03	Doss Engineering
WA	Chelan	0.025	City of Wenatchee
WA	Eastsound	0.08	ARC Engineering
SEPTAGE TREATMENT			
ID	Averty	0.023	David Welch & Assoc., Inc.
MI	Michigamme	0.042	McNamee, Porter & Seely
MI	West Traverse	0.006	Williams & Works
SD	Mina Lake	0.03	Doss Engineering

Selected Operational Facilities

State	Community	Design Flow (MGD)	Design Consulting Firm
SLUDGE TREATMENT			
90% Methane Recovery			
AZ	Flagstaff	--	Brown & Caldwell
AZ	Phoenix	150.0	John Carollo/Bethlehem Corp.
AZ	Pima Co.	30.0	Black & Veatch
CA	Contra Costa	--	CDM/KKA Consultants
KS	Topeka	20.0	Van Doren, Hazard & Stallings
MI	Charlotte	1.2	Capital Consultants
NV	Carson City	4.15	Vasey Engineers
NV	Elco	2.5	Chilton Engineering
NV	Reno	40.0	Kennedy/Jenks Engineers
SD	Milbank	1.5	Banner & Associates
WA	Enumclaw	2.4	Kramer, Chin & Mayo, Inc.
WI	Waukesha	11.6	Alvord, Burdic & Howson
Composting Prior to Land Application			
CA	S. San Francisco	8.2	George S. Nolte Assoc.
ME	Old Town	--	James W. Sewall Co., Inc.
ME	South Portland	5.5	Wright-Pierce
NE	Falls City	0.52	Garber & Work
Land Application			

*There are sludge land application projects in most states. Contact the local I/A coordinator for the location of individual projects.

TABLE 6

FIELD TEST PROJECTS

Location	Status	Technology Involved
Phoenix, AZ	under construction	Digester Gas Scubbing for Resale
Clinton, AR	planned	Biological Aerated Filter
Fayetteville, AR	planned	Biological Nutrient Removal
San Diego, CA	in progress	Aquaculture, Pulsed Bed Filter, Fixed Bed Anaerobic Filter, Hybrid Rock/Reed Filter
San Diego, CA	planned	Advanced Water Treatment for Potable Re-use
Wauconda, IL	under construction	Trickling Filter/ Solids Contact
Winnfield, LA	planned	Boat Clarifier
Boston, MA	in progress	Composting
Rising Sun, MD	completed	Photozone Disinfection
Jackman, ME	under construction	Phosphorus Removal
Charleston, MS	proposed	Rock/Reed Filter
Whitefish, MT	planned	Phosphorus Removal Via Phased Isolation Ponds
Roswell, NM	in progress	Aerobic Composting
Chemung County, NY	completed	Trickling Filter/ Solids Contact

Table 6 (cont'd)

Hornell, NY	completed	Seeded Bacterial Nitrification
Toledo, OH	completed	Swirl Concentrators
Choctaw, OK	planned	Sequencing Batch Reactor
Clear Lake, WI	completed	Primary Effluent Filtration

TABLE 7

100% M/R REQUESTS

Location	Status	Technology
Flagstaff, AZ	under review	Tube Settlers/ Disinfection
Fallen Leaf Lake, CA	awarded 9/83	Valves, Controls, and Air Ejection System in Vacuum/Pressure Collection System
Manila, CA	awarded 8/83	STEP System Sonic Level Detectors
South Portland, ME	under review	Composting
Rising Sun, MD	under review	UV Disinfection
Fall River, MA	under review	Self-Sustaining Incineration
Northfield, MN	under review	UV Disinfection
Scottsbluff, NE	under review	Microscreens
Santa Fe, NM	under review	Draft Tube Aerators
Lawrence, NY	award pending	Mound System
Clifford, ND	under review	Mound System
Campbellsport, WI	under review	Rapid Infiltration

TABLE 8

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Table 8 (cont'd)

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Table 8 (cont'd)

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Table 8 (cont'd)

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EPA AND STATE I/A TECHNOLOGY
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WASHINGTON, D.C. 20460

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OFFICE OF
WATER

U. S. Dept of Commerce
National Technical Information Service
Washington, DC 20402

ATTN: Input Section

Dear Sir/Madam:

Enclosed are the necessary forms for the submission to the National Technical Information Service and eleven copies of the publication entitled "Innovative and Alternative Technology Projects: 1985 Progress Report" (September 1985)

This publication supercedes the material entitled "Innovative and Alternative Technology Projects: A Progress Report" (September 1984) with the NTIS accession number PB8510841.

If there are any questions on the enclosed publications or the forms please call me at (202) 382-7373.

Sincerely yours,

Bernita Starks
Environmental Protection Specialist
Fiscal & Administrative Branch
Office of Municipal Pollution Control

Case file